



UT3414

Power MOSFET

N-CHANNEL ENHANCEMENT MODE

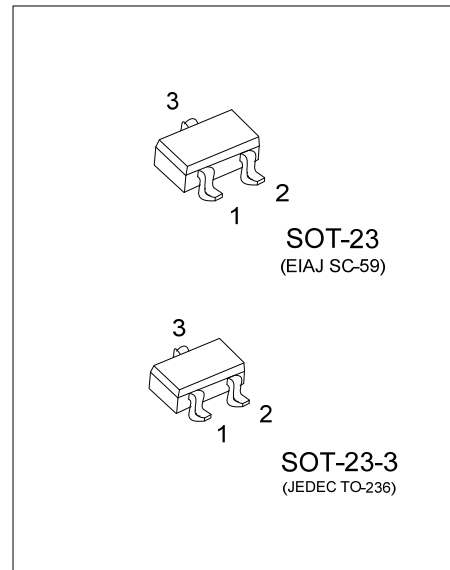
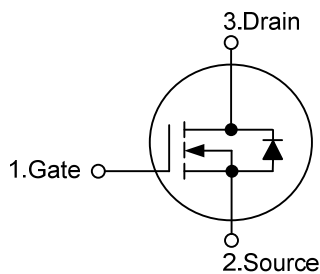
DESCRIPTION

The **UT3414** uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 1.8V. This device is suitable for use as a load switch or in PWM applications.

FEATURES

- * $R_{DS(ON)} \leq 50m\Omega @ V_{GS}=4.5V, I_D=4.2A$
- * $R_{DS(ON)} \leq 63m\Omega @ V_{GS}=2.5V, I_D=3.7A$
- * $R_{DS(ON)} \leq 87m\Omega @ V_{GS}=1.8V, I_D=3.2A$
- * Low capacitance
- * Low gate charge
- * Fast switching capability
- * Avalanche energy specified

SYMBOL



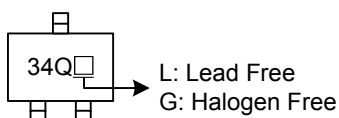
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT3414L-AE2-R	UT3414G-AE2-R	SOT-23-3	G	S	D	Tape Reel
UT3414L-AE3-R	UT3414G-AE3-R	SOT-23	G	S	D	Tape Reel

Note: Pin Assignment: G: Gate S: Source D: Drain

<p>UT3414G-AE2-R</p>	<p>(1) R: Tape Reel</p> <p>(2) AE2: SOT-23-3, AE3: SOT-23</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_A = 25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V _{DSS}	20	V
Gate-Source Voltage	V _{GSS}	±8	V
Continuous Drain Current	I _D	4.2	A
Pulsed Drain Current	I _{DM}	15	A
Power Dissipation	P _D	1.4	W
Junction Temperature	T _J	+150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Repetitive Rating: Pulse width limited by maximum junction temperature.

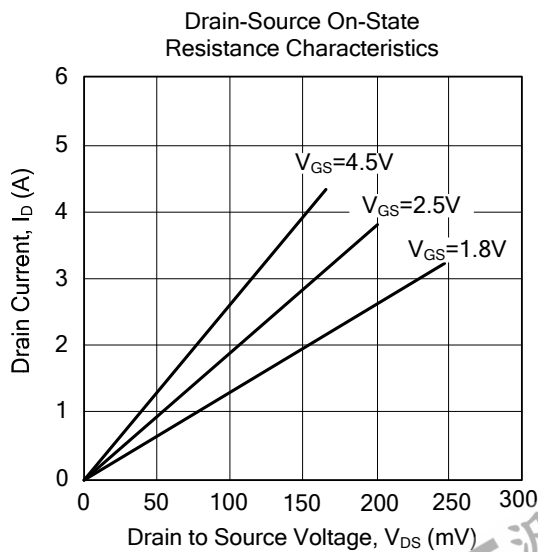
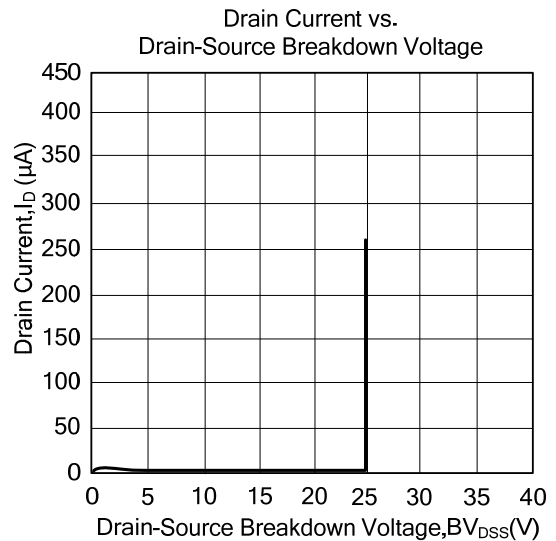
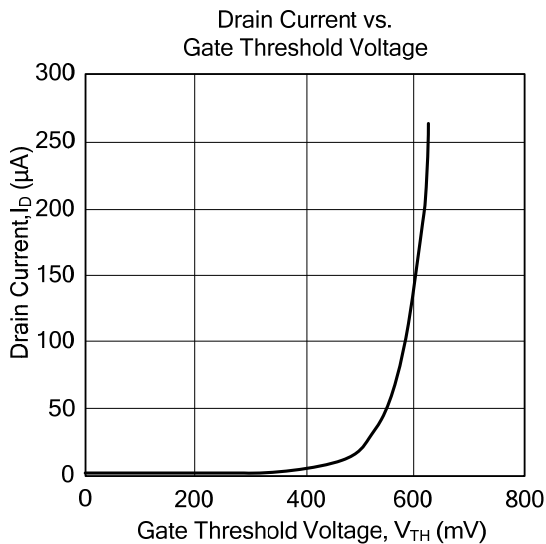
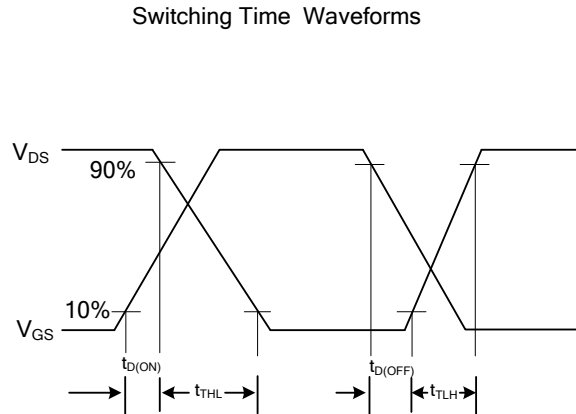
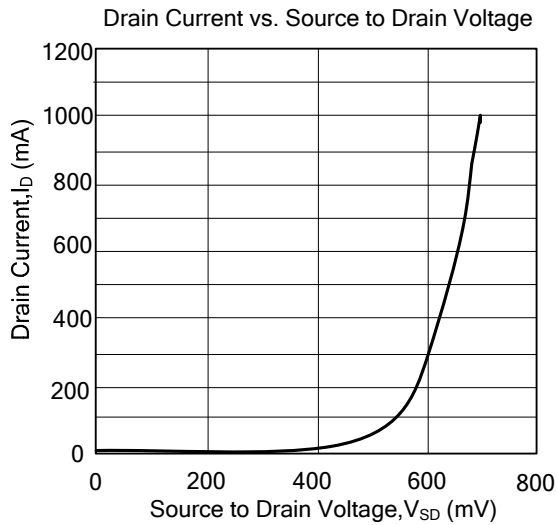
■ THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction to Ambient	θ _{JA}		100	125	°C/W

■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	20			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =16V, V _{GS} =0V			1	μA
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±8V			100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	0.4	0.6	1	V
On State Drain Current	I _{D(ON)}	V _{DS} =5V, V _{GS} =4.5V	15			A
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =4.5V, I _D =4.2A		41	50	mΩ
		V _{GS} =2.5V, I _D =3.7A		52	63	
		V _{GS} =1.8V, I _D =3.2A		67	87	
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =10V, V _{GS} =0V, f=1.0MHz		436		pF
Output Capacitance	C _{OSS}			66		pF
Reverse Transfer Capacitance	C _{RSS}			44		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q _G	V _{DS} =10V, I _D =4.2A, V _{GS} =4.5V		6.2		nC
Gate Source Charge	Q _{GS}			1.6		nC
Gate Drain Charge	Q _{GD}			0.5		nC
Turn ON Delay Time	t _{D(ON)}	V _{DS} =10V, V _{GS} =5V, R _L =2.7Ω R _G =6Ω		5.5		ns
Turn ON Rise Time	t _R			6.3		ns
Turn OFF Delay Time	t _{D(OFF)}			40		ns
Turn OFF Fall-Time	t _F			12.7		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Body-Diode Continuous Current	I _S				2	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =1.0A		0.76	1	V
Body Diode Reverse Recovery Time	t _{rr}	I _F =4.0A, dI/dt=100A/μs		12.3		ns
Body Diode Reverse Recovery Charge	Q _{rr}	I _F =4.0A, dI/dt=100A/μs		3.5		nC

TYPICAL CHARACTERISTICS



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